PROCEEDINGS OF THE CLUB

Meeting of February 7, 1939 at the American Museum of Natural History

The meeting of the Torrey Club was called to order at 8:15 P.M. by the President, Dr. Arthur H. Graves. Forty-four persons were present.

The president announced that the Club would have Dr. W. E. Kearns as speaker at the meeting held at the American Museum of Natural History on March 7, 1939. He also announced that the first field trip of the year will be held on March 4 under the guidance of Miss Wiley. All people interested in this trip will meet at 10 A.M. in room 207 of the School Service Building of the American Museum of Natural History.

No further business was transacted.

The scientific part of the program consisted of an illustrated lecture on the Vegetational Zones of British Guiana by Dr. A. C. Smith of The New York Botanical Garden. An abstract by the speaker follows:

"As a member of the American Museum-Terry-Holden Expedition, the speaker had the opportunity to collect plants in British Guiana in 1937 and the first part of 1938; subsequently he collected under the auspices of the New York Botanical Garden and collaborating institutions. The region visited was the country drained by the upper Essequibo and Rupununi Rivers, some weeks being spent in the Akarai and Kanuku Mountains; except for small collections of the Schomburgks, the area had been essentially uncollected.

"Of the four principal vegetational zones of British Guiana, the rain forest is by far the most extensive, covering about 90 per cent of the country. This forest is not floristically homogeneous, but shows several types, each with one or more obviously dominant trees. The interior forest appears to be a preclimax of the Amazonian rather than the typical Guianan forest, as shown by the presence of certain species and the conspicuous absence of others.

"The extensive Rupununi savannas make up another vegetational zone. This outlying section of the Brazilian Rio Branco savannas is far from monotonous showing many various types of vegetation depending upon soil and other factors. Perhaps the most remarkable region of British Guiana is the sandstone area culminating in Mount Roraima, a unique region of great endemism."

After considerable discussion the meeting adjourned.

CLYDE CHANDLER
Reocrding Secretary

MEETING FEBRUARY 15 AT THE BROOKLYN BOTANIC GARDEN

The meeting was called to order at 3:30 P.M. by the President, Dr. Arthur H. Graves. Twenty-six persons were present.

The minutes of the meetings of January 18th and February 7th were adopted as read.

Mr. Glen D. Chamberlain, 22 Academy Street, Presque Isle, Me. and Mr. Julius Cohn, 1987 Davidson Avenue, Bronx, N. Y. were elected to annual membership in the club.

Mr. Andrew D. Kalmykow, 473 West 158th Street, New York City and Miss Dorothy Jewett, 441 Baldwin Road, Maplewood, N. J., were elected Associates.

The following resignations from Annual Membership were reported: Dr. George L. Zundel, Penn State College, State College, Pa., Miss Dorothy Jewett, 441 Baldwin Road, Maplewood, N. J.; Mrs. Mary Olmstead Sparrow, 1818 Clay Avenue, New York, N. Y.; and Mr. Joseph Hermann Fleisher, 1904 Robinson Avenue, Conway, Ark.

It was with regret that the secretary announced the death of the following annual members of the Club:

Mr. Ira C. Otis, 4320 First Ave., N.E., Seattle, Washington, died on November 3, 1938.

Prof. John H. Schaffner, Ohio State University, Columbus, Ohio, died on January 27, 1939.

Dr. E. B. Southwick, an honorary life member, 206 West 83rd Street, New York City, died December 18, 1938.

It was voted that the President appoint a committee of two persons to prepare an account of Dr. Southwick's life to be published in TORREYA.

The Club welcomed most heartily two of its new members, Mrs. Mark Cohn and Miss Lucile M. Joyce who were present at the meeting.

The scientific program consisted of a report by Dr. Elizabeth Marcy on "Some Factors Influencing Smut Infection in the Sorghums."

The meeting adjourned at 4:45 P.M. after which tea was served by the Brooklyn Botanic Garden.

CLYDE CHANDLER
Recording Secretary

MEETING OF MARCH 7, AT AMERICAN MUSEUM OF NATURAL HISTORY

The meeting was called to order by the President, Dr. Arthur H. Graves at 8:15 P.M. Eighty-seven persons were present.

No business was transacted.

Mr. W. E. Kearns, Assistant Park Naturalist, spoke on his experiences in Yellowstone National Park. Mr. Kearns has photographed the Park at the various seasons and especially attractive were the natural color slides showing the plant and animal life of the Park during midwinter.

CLYDE CHANDLER
Recording Secretary

MEETING OF MARCH 15, AT COLUMBIA UNIVERSITY

The meeting of the Torrey Club was called to order at 4:30 P.M. by the Vice-President, Mr. George T. Hastings. Twenty-eight persons were present.

The minutes of the meeting of February 15 and March 7 were adopted as read.

Miss Charlotte M. Jacobs, Dept. of Biological Sciences, Hunter College, 2 Park Ave., New York City and Dr. Henry J. Oosting, Dept. of Botany, Duke University, Durham, N. C., were elected annual members of the Club.

Mrs. Robert B. Zatz, 1384 Union Street, Brooklyn, New York and Mr. Eugene Gross, 775 High Street, Newark, N. J., were elected associate members of the Club.

The transfer of Mr. George F. Dillman, 346 East 87th Street, New York, N. Y., and Dr. John S. Ware, 396 Van Duzer Street, Stapleton, Staten Island, N. Y., from annual membership to associate membership was approved.

The following resignations from annual membership were reported: Dr. E. S. Schultz, Bureau of Plant Industry, U. S. D. A., Washington, D. C.; Mr. Frank H. Rossiter, 365 Reserve

Street, Boonton, N. J.; Mr. Charles E. Mohr, 815 Greenwich Street, Reading, Pa. and Miss Libra Palmeri, 313–17th Street, Brooklyn, N. Y.

The resignation of Mr. Frank Mayer, 165 East 88th Street, New York, N. Y., an associate member, was reported.

Miss Rosalie Rosenberg, 32 East 64th Street, an annual member for 40 years, was elected to Life Membership.

Miss Lela V. Barton was elected a member of the Council to fill the vacancy left by Dr. Carey in the 1937–1939 group.

Dr. W. S. Thomas and Mr. James Murphy were elected members of the Council to fill the vacancies in the 1938–1940 group.

A plan proposed by the Appalachian Mountain Club for a memorial to Raymond H. Torrey was presented to the Club by Dr. J. S. Karling.

"There are two hundred acres on Anthony's Nose, facing the river, which constitute a dangerous quarry site. Approximately $12,000 is needed to purchase this land. The Hudson River Conservation Society has raised $7,000 towards it. It has been suggested that a most beautiful and appropriate memorial to Mr. Raymond H. Torrey could be made if the members of the New York and New Jersey out-door clubs could contribute the remaining $5,000 necessary to complete the purchase. With this money a tract of about 100 acres could be set aside in memory of Mr. Torrey. The entire 200 acres will be given to the State to be used for park purposes only. Your gift will serve a double purpose: saving beautiful and historic Anthony's Nose from destruction, and creating a memorial to Mr. Torrey in the region he loved so well."

No action was taken by the Club.

The scientific part of the program consisted of a report by Miss Vivian Trombetta on her research investigations on "Cytonuclear Relationship in Plant Cells."

The speaker's abstract follows:

"From the time of Strasburger, Sachs and Hertwig, botanists and zoologists have tried to connect problems of growth of living cells with the nucleocytoplasmic ratio—i.e. the relationship of nucleus to active cytoplasm. In mature plant cells where a large vacuole is found, it is practically impossible to determine the volume of the cytoplasm with any degree of accuracy, pushed as it is against the wall in a thin film of unequal thickness. Consequently, instead of attempting to find the relationship between the volume of the nucleus and cytoplasm, an attempt was made to find the relationship between the volume of the nucleus and that of the *entire* cell—the *cytonuclear* relationship in plant cells.

The method of approach has been a simple one. Camera lucida drawings of cells and nuclei were made, the drawings measured and volumes determined. Stem and root tip meristems of a number of representative families of the higher plants were used, leaves of the aquatic plant *Elodea*, and stem hairs of tomato plants. In ordinary meristem tissue, nuclear volume bears a definite relationship to cell volume, large cells having larger nuclei than small cells, but as cell size increases, nuclear size does not increase as fast. The *relative* rates of change, however, are constant, so that when plotted logarithmically, a straight line results. The fact that the slope of the line is about .67 indicates that the nucleus is growing only about two-thirds as rapidly as the cell, and as a result, the volume of the nucleus is keeping pace with the surface of the cell (the surface of a sphere growing as the square of its linear dimensions and the volume as their cube, as a result of which the surface of a spherical cell will increase two-thirds as fast as its volume). The relationship holds for experimentally enlarged nuclei—in polyploid cells of the root tip induced by colchicine treatment.

Further studies were undertaken to discover whether any change occurs in the cytonuclear ratio during the growth phases of elongation and differentiation. The relationship apparently is maintained throughout development in the onion root tip for cells of different sizes at the same stage of development, but final cell size may be as much as one hundred times, and nuclear size three times greater than meristematic size. Stem tip material offers three distinct developmental types—one, similar to the developing onion root tip; a second, one in which nuclear size remains the same in the meristem, but increases when meristematic activity stops; and a third, one in which the relationship of cell to nucleus found in the meristem, is maintained throughout development. The method of approach in this study—the method of heterogonic growth proposed by Huxley—is rather significant here.

Clyde Chandler
Recording Secretary